16, 27, 28, 34-48, 50 and 51 of the referenced application. However, the application is believed to be in condition for allowance because the claims are not anticipated or obvious over the cited art. As such, the applicants hereby respectfully request further examination and reconsideration of the subject application. The reasons for this belief in the non-obviousness of the rejected claims are presented below.

The Section 102 Rejection of Claims 1-7, 11-13, 27, 28, 34-48 and 50-51

Claims 1-7, 11-13, 27, 28, 34-48 and 50-51 were rejected under 35 USC 102(e) as being anticipated by Cureton et al. (U.S. Patent Application Publication No. 2002/0116200). The Final Office Action asserts that Cureton discloses each and every element of the applicant's claimed invention. The applicants respectfully disagree with this contention.

The rejected claims, among other things, claim that the building of a geometric model database includes "establishing a set of entities that are of interest in the environment, each entity of which is represented by at least a coordinate frame unique to that entity, and characterizing the location of each entity in the environment in terms of the coordinate frame of at least one other entity, rather than in terms of a coordinate frame common to all entities". Cureton does not teach these features.

Rather Cureton teaches the exact opposite. Cureton teaches a geometric model that expressly characterizes the location of each entity in terms of a global coordinate frame common to all. The reference is replete with evidence of this global coordinate location scheme. For example,

> "The function of the global coordinate reference system... is to provide a reference framework within which **the position of all real**

> **objects in the feedlot can be specified.**" (Page 9, paragraph 86), and,
>
> "Using mathematical mapping techniques, such as homogeneous transformations, **position coordinates specified within global coordinate reference system...can be easily related to coordinates specified within any local coordinate reference system.**" (Page 9, paragraph 90).

Granted, some (although not all) of the entities in the feedlot geometric model also have local coordinate systems that are used to characterize the location of other entities. For example, the feedlot vehicles each have a local coordinate system that is used to define the location of the vehicle and equipment on the vehicle (e.g., feedchutes) to other entities in the feedyard (e.g., an animal pen). However, these local coordinate systems are not used exclusively by the geometric feedlot model to characterize the location of other entities, as claimed by the application. In other words, while one aspect of the Cureton teaching does characterize the location of entities in terms of the coordinate frame of at least one other entity, it does not, as claimed by the applicants, do this "rather than in terms of a coordinate frame common to all entities". In each case, any characterization of the location of an entity in terms of a local coordinate system of another entity, is also accompanied by a characterization of that same entity in terms of a global (i.e., common) coordinate system. This is evidenced, among other places in the reference, by the following excerpt:

> **"Globally referenced coordinate information acquired by each feedlot vehicle** and transmitted to all other VR subsystems in the feedlot management system **is used to automatically update the position and orientation of the vehicle within the VR model thereof.**" (Page 9, paragraph 99)

In reply to this same argument as presented in response to the Office Action dated May 20, 2004 (Paper No. 5), the Examiner in this Office Action has presented a train of logic that ultimately comes to the conclusion that the specification inherently teaches the use of a coordinate frame that is common to all entities. This is in direct opposition to the express language of the rejected claims. The present After Final Response is provided as it is believed the Examiner's logic is flawed.

The aforementioned suppositions start off by quoting from the specification of the subject application as follows,

> "Specification, Page 3, Line 27 to Page 4, Line 2 state that entity identification information is provided to the geometric model program from **external programs**;...the entity identifier information is provided back to the outside program which introduced the entity...the ID is used by the outside programs when updating information about an entity. Page 4, Lines 6-11 state that the location of an entity in the physical world is defined using **measurements**;...a measurement describes the position and orientation of one entity's coordinate frame, **expressed in terms of another entity's coordinate frame; measurements originating at an entity's frame are expressed in terms of that frame**. Page 9, Line 2 states that the outside programs input updated measurements. Page 9, Lines 15-18 state that the ubiquitous computing environment is **dynamic in nature**; and the outside programs feed entity, measurement and extent information into the geometric model program to supply this information each time."

However, the Examiner then adds:

> "Page 26, Lines 15-16 state that the first entity can be any one in the loop for which an actual location corresponding to the origin of the frame has been previously specified. Therefore the examiner takes the position that the **actual location of the origin of the frame of the first entity frame** is previously specified by an **external program**"

The problem with this link in the logic train is that the quote from the specification is taken out of context. It comes from a section describing an optional feature where the accuracy of the measurements can be assessed and corrected as needed. This is actually the subject matter of the claims that have been deemed allowable in the Final Office Action (i.e., Claims 18-26). In essence, the described procedure identifies loops of entities where the location of each entity in the loop is known in terms of the local coordinate frame of the preceding entity in the loop. Then, by selecting an entity and using the respective measurements around the loop, a particular location can be derived in terms of the local coordinate frame of the entity immediately preceding the selected entity. This is then compared to a location measurement provided by an external source that indicates the actual location of the selected entity **In terms of the coordinate frame of the immediately preceding entity**. These two locations are then compared to assess the accuracy of the individual measurements between the entities in the loop.

However, the Examiner interprets this "actual location" to be in terms of some external entity provided by the external program, as evidence by the following recitation from the Final Office Action:

> "Since the location of an entity in the physical world is defined using **measurements** and a measurement describes the position and orientation of one entity's coordinate frame, **expressed in terms of**

> **another entity's coordinate frame**, it would be obvious to one of ordinary skill in the art that the location of the origin of the frame of the first entity frame is specified in terms of another entity's coordinate frame. What is "another entity" for the first entity? It is the **external entity** provided by the external program. Once the location of the first entity's coordinate frame is specified in terms of the origin of this external entity, one of elementary or beginner's knowledge in analytical geometry would be able to determine the next entity's coordinate frame location using the measurements from the origin of the first entity. The procedure can be repeated for all other entities. For all such entities, the external entity provides the common coordinate frame, though the applicants deny this. Therefore the applicants **do not use the local coordinates exclusively to characterize the location of other entities**."

This is not a reasonable interpretation. There is absolutely nothing in the specification that implies some kind of external entity whose coordinate frame can provide a common frame for all the entities in the loop. When taken in context one would realize that the reference to an actual location refers to a location defined in terms of the preceding entity in the loop. Any other interpretation flies in the face of the description, which states each entity's location is defined in terms of another entity's local coordinate frame. In addition, if the "actual" location provided by the external source is not in terms of the coordinate frame of the immediately preceding entity in the loop, the previously computed location derived by following the loop around could not be compared to it. As the Examiner's logic hinges on the introduction of a non-existent external entity, the foregoing conclusion cannot be supported.

Further it must be remembered that the "actual location" information is only provided in an optional embodiment of the invention employing the aforementioned entity loops to assess the accuracy of the measurements. The

rejected claims are not directed to this optional embodiment, and by the Doctrine of Claim Differentiation cannot be interpreted to include it (i.e., because it is expressly claimed in objected to Claims 18-26). Thus, for argument sake, even if the specification were to be interpreted as the Examiner contends, it has no applicability to the subject matter of the rejected claims.

A prima facie case of anticipation is established only when the Examiner can show that the cited reference teaches each of the claimed elements of a rejected claim. In this case, the Examiner cannot show that the Cureton reference teaches the claimed feature whereby building the geometric model database includes establishing a set of entities **where each is represented by a coordinate frame unique to that entity**, and characterizing the location of each entity in terms of the coordinate frame of at least one other entity, **rather than in terms of a coordinate frame common to all entities**. Thus, the rejected claims recite features that are not taught in cited art, and as such a prima facie case of anticipation cannot be established. It is, therefore, respectfully requested that the rejection of Claims 1-7, 11-13, 27, 28, 34-48 and 50-51 be reconsidered based on the novel claim language:

> " building a geometric model database of the environment based on an initial input of said information, comprising,
>
> establishing a set of entities that are of interest in the environment, each entity of which is represented by at least a coordinate frame unique to that entity, and
>
> characterizing the location of each entity in the environment in terms of the coordinate frame of at least one other entity, rather than in terms of a coordinate frame common to all entities."

<u>The Section 103(a) Rejections of Claims 8, 9 and 14-16</u>

Claim 8 was rejected under 35 USC 103(a) as being unpatentable over Cureton in view of Kacyra et al., U.S. Patent No. 6,473,079. Claim 9 was rejected under 35 USC 103(a) as being unpatentable over Cureton in view of Gelphman, U.S. Patent No. 6,556,783. Claim 14 was rejected under 35 USC 103(a) as being unpatentable over Cureton in view of Cox et al., U.S. Patent No. 5,363,305. And finally, Claims 15 and 16 were rejected under 35 USC 103(a) as being unpatentable over Cureton in view of Cox, and in further view of Davison et al., U.S. Patent No. 6,516,099. It is contended in the Office Action that the combined teachings of Cureton and the other cited references respectively teach all the elements of the rejected claims, and that it would have been obvious to incorporate these teachings into Cureton to produce the applicants' claimed invention. The applicants hereby respectfully disagree with the contentions of obviousness identified above because, like Cureton, none of the other cited references teaches the claimed features whereby the building of a geometric model database includes "establishing a set of entities that are of interest in the environment, each entity of which is represented by at least a coordinate frame unique to that entity, and characterizing the location of each entity in the environment in terms of the coordinate frame of at least one other entity, rather than in terms of a coordinate frame common to all entities".

In order to deem the applicant's claimed invention unpatentable under 35 USC 103, a prima facie showing of obviousness must be made. Without a teaching of the aforementioned features, the cited references cannot support such a showing. It is, therefore, respectfully requested that the rejection of Claims 8, 9 and 14-16 be reconsidered based on the above-quoted non-obvious claim language.

The Objections to Claims 10, 17-26, 29-33 and 49

Claims 10, 17-26, 29-33 and 49 were objected to as being dependent upon a rejected base claims. The Examiner stated that they would be allowable

if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The applicants at this time, however, respectfully decline to rewrite these claims because it is the applicants' position that the independent claims from which these claims depend are patentable.

Summary

In summary, reconsideration of the rejection of Claims 1-9, 11-16, 27-28, 34-48, 50 and 51, and withdrawal of the objections to Claims 10, 17-26, 29-33 and 49, are respectfully requested. In addition, allowance of all the claims at an early date is courteously solicited.

Respectfully submitted,

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